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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,482

06/10/2005

John Malcolm Gascoyne

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RATNERPRESTIA
P O BOX 980
VALLEY FORGE, PA 19482-0980

EXAMINER

TALBOT, BRIAN K

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

09/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/516,482	Applicant(s) GASCOYNE ET AL.	
	Examiner Brian K. Talbot	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1792

1. The amendment filed 7/10/08 has been considered and entered. Claims 15-21 have been added. Claims 1-21 remain in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. In light of the amendment filed 7/10/08, the objection under 37 CFR 1.75(c) for claims 6,7,13 and 14 has been withdrawn.
4. The submission of a new abstract has been received. The objection to the specification concerning the Title has therefore been withdrawn.
5. In light of the amendment filed 7/10/08, the 35 USC 112 second paragraph rejection have been withdrawn.
6. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hards et al. (5,501,915) in combination with Weber, "Study of Nafion films on electrodes prepared from dimethylacetamide solution" further in combination with Kosako et al. (6,977,234).

Hards et al. (5,501,915) teaches a method of incorporating proton conducting polymer into an electrocatalyst layer wherein a catalyst layer is applied to a GDS, and a solution of proton conducting polymer is subsequently applied to the catalyst layer. The electrocatalyst is formulated into a catalyst ink by dispersing in water and adding a suitable binder. The catalyst

Art Unit: 1792

ink is applied to the GDS by a suitable process such as screen printing or spraying. Thereafter a solution of proton conducting polymer is applied to the electrocatalyst layer. The proton-conducting polymer can be Nafion. A further layer of solubilized proton conducting polymer may then be applied to the front face of the electrode structure (col. 5, line 30 – col. 7, line 5 and col. 8, lines 42-67).

Hards et al. (5,501,915) fails to teach the claimed solvent, N,N-dimethylacetamide.

Weber, “Study of Nafion films on electrodes prepared from dimethylacetamide solution” teaches mixing a proton-conducting polymer (Nafion) with a solvent comprising N,N-dimethylacetamide and applying this to an electrocatalyst electrode.

Therefore it would have been obvious for one skilled in the art at the time to have modified Hards et al. (5,501,915) proton-conducting polymer solution to include N,N-dimethylacetamide as the solvent with the expectation of achieving similar success.

Regarding claims 4,5,11 and 12, the claims recite that the catalyst is support or unsupported. Hards et al. (5,501,915) teaches that it is known to have support and unsupported platinum electrodes (col. 3, lines 1-5).

Hards et al. (5,501,915) in combination with Weber, “Study of Nafion films on electrodes prepared from dimethylacetamide solution” failed to teach a drying/firing step and forming a catalyst layer and then a polymer layer to form the gas diffusion electrode.

Kosako et al. (6,977,234) teaches forming a gas diffusion electrode whereby a catalyst layer is applied to a substrate and then a polymer layer was applied thereto to form the gas diffusion electrode. A drying step was performed as well (col. 24, line 35 – col. 25, line 20 and Figs. 7a-7d).

Art Unit: 1792

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Hards et al. (5,501,915) in combination with Weber, "Study of Nafion films on electrodes prepared from dimethylacetamide solution" by including a drying/firing step as well as forming a gas diffusion electrode by forming catalyst layer and then a polymer layer as evidenced by Kosako et al. (6,977,234) with the expectation of achieving similar success as well as forming a gas diffusion electrode having the catalyst layer formed adjacent to the membrane layer for an improved fuel cell

Response to Amendment

7. Applicant's arguments filed 7/10/08 have been fully considered but they are not persuasive.

Applicant argued that the combination of art fails to teach a firing and/or drying step.

Kosako et al. (6,977,234) teaches this limitation as detailed above.

Applicant argued that there is no reason to combine the references.

The Examiner agrees in part. However, Applicant is reminded that the test of obviousness is not express suggestion of the claimed invention in any or all references but rather what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them. *In re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965); *In re Hedges*, 783 F.2d 1038. It is not necessary that the prior art suggest expressly or in so

Art Unit: 1792

many words the changes or possible improvements the inventor made but that the knowledge be clearly present. *In re Sernaker*, 217 USPQ 1 (Fed. Cir. 1983). In this instance, the combination of references teaches that the formation of a gas diffusion electrode can be formed by applying a catalyst layer and then a polymer layer or by forming an electrode by a mixture of a polymer and a catalyst layer and these would be expected to produce similar results.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 8AM-4PM.

Art Unit: 1792

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian K Talbot/
Primary Examiner, Art Unit 1792

BKT